

REMARKS

Applicants thank the Examiner for allowing claims 14-19 and 25-28, and identifying allowable subject matter in claims 3-13 and 55.

In the Office action of April 20, 2004, claims 1 and 2 were rejected under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent No. 6,560,443 to Vaisanen et al. (hereinafter "Vaisanen"). Claims 20 and 56 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Vaisanen in view of U.S. Patent No 6,047,165 to Wright et al. (hereinafter "Wright"). Claim 23 was rejected under 35 U.S.C. § 103(a) as allegedly obvious over Vaisanen in view of U.S. Patent No 6,377,608 to Zyren (hereinafter "Zyren"). Claims 39-44 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Vaisanen.

Applicants respectfully traverse the rejections of record and requests reconsideration in view of the foregoing amendments and following remarks.

Objections to the Specification

Applicants have amended the paragraph which previously extended from page 3, line 12 to page 4, line 4. Applicants have thus removed the objected-to hyperlink from the written description, and replaced the hyperlink with an incorporation by reference of the Bluetooth standard technical specification. Applicants respectfully assert that no new matter has been added, as the Bluetooth specification is available at the hyperlink previously cited in the specification of the present invention.

Objections to Claims 4, 17, 20, 23, 28 and 42

Claims 4, 17, 20, 23, 28 and 42 were objected to for not identifying a version number for the Bluetooth standard. Although Applicants have amended the specification to include a reference to a particular version of the Bluetooth standard (version 1.1), Applicants submit that one of ordinary skill in the art would understand the claims to cover the use of *any* version of the Bluetooth standard. Accordingly, it is not necessary for Applicants to limit the scope of the claims to any particular implementation or specific version of Bluetooth. Accordingly, Applicants respectfully request that the objections to these claims be removed.

Rejections under 35 U.S.C. § 102(e)

Applicants' invention is an apparatus and method for operating co-located transceivers operating in the same frequency band without interference. Applicants' invention provides an innovative approach to providing substantially continuous communications using two protocols, interrupting one protocol for only a brief period to service communications using the other protocol. Applicant relies on characteristics of the protocols to achieve this dual operation in ways that are neither taught nor suggested by the art. As set forth in the Specification of the present application:

With no coordination, there will be times when the BTM 130, 150 and the associated MU 120, 140 attempt to operate at the exact same time. Since the two devices operate in the same 2.4 GHz ISM frequency band the BTM 130, 150 and the MU 120, 140 may severely interfere with one another, especially if they are housed in a dual mode device 100, 110. Therefore, there is a need for coordination between the two devices. One such coordination scheme is primarily based on time multiplexing of the 802.11 and BT radios, which is especially suitable for a controlled environment (e.g., the 802.11 and BT radios are housed in the same terminal or dual mode device). In one embodiment, the Bluetooth systems are enabled or disabled according to a global/central signal from the 802.11 AP as described herein. The central signal may also be coordinated among the two devices without coordinating with the AP.

Accordingly, as noted above, Applicants' invention provides substantially continuous communications using two protocols, interrupting one protocol for only a brief period to service communications using the other protocol.

The Vaisanen Patent relates only to antenna sharing switching circuitry for a mobile terminal having both a WLAN Transceiver and a Bluetooth transceiver and having two antennas. The Vaisanen arrangement does not attempt to coordinate operation according to the two protocols, but rather selects the preferred protocol (WLAN) when an access point is available, and the Bluetooth protocol when an access point is not available. In this case a portable terminal communicates via a mobile phone, using Bluetooth. As described at column 1, lines 34 to 40, the arrangement of Vaisanen is intended to enable a personal portable computer to send and receive e-mail via a mobile telephone without wired connection between the mobile telephone and the portable computer when the computer is outside WLAN range, but to use the WLAN when an access point is available. There is no attempt, as in the present invention, to coordinate operation of transceivers using the two different protocols, except to receive signals to monitor the presence of a WLAN access point when communicating using Bluetooth protocol. (See col. 4, lines 54 to 60).

As amended, claim 1 and dependent claim 2 are distinguished over the Vaisanen Patent since the radios communicate substantially continuously, as opposed to the mode-switching scheme of the Vaisanen Patent, and are further distinguished in that claims specify that the coordinator causes the base station to transmit command signals to activate the first and second transceivers. In the Vaisanen patent the control circuit is not a coordinator and is not associated with a base station and arranged to cause the base station to transmit command signals. Accordingly, it is respectfully submitted that claims 1 and 2 are patentable over Vaisanen.

Rejections under 35 U.S.C. § 103(a)

The Examiner has rejected claim 20 as obvious over Vaisanen in view of Wright. The Examiner asserts that Wright teaches that a transceiver such as that of Vaisanen "benefits" from using orthogonally polarized antennas.

Applicants submit that the combination of Wright and Vaisanen is improper.

First, the cited portion of Wright, at column 5, lines 17-20, teaches that orthogonal antennas may be provided to alleviate some of the problems caused by multipath signals. In contrast, Vaisanen already deals with interference in a very different way – i.e., by utilizing only one transceiver at a time. Accordingly, one of ordinary skill in the art would find no suggestion or motivation to combine the references, since Vaisanen essentially *teaches away* from the combination. For at least this reason, Applicants submit that the combination is improper.

Furthermore, the orthogonal antennas of Wright are connectable to the same transceiver using antenna diversity unit 254. In contrast, Applicants use orthogonal antennas for purposes of isolating one receiver from transmitted signals of the other transceiver. Accordingly claim 20 specifies that the two transceivers are connected to different antenna systems that are orthogonally polarized. Vaisanen has the same isolation problem, but solves the problem in a different way by using a metallic shield between antennas (Vaisanen Patent column 5, lines 35 to 43). Since orthogonal polarized antennas are used for an entirely different purpose, and for a single transceiver in the Wright Patent there is no suggestion to substitute orthogonal antennas for the shielded antennas of Vaisanen. Accordingly, for at least this additional reason, one of ordinary skill in the art would not look to Wright to address a problem which Vaisanen has already adequately addressed in a different way. It is therefore requested that the Examiner

reconsider and withdraw the rejection of claim 20. Furthermore, Applicants submit that claim 56, which depends from claim 20, is likewise allowable.

Claim 23 is rejected as obvious over the Vaisanen Patent in view of the Zyren Patent. Claim 23 is distinguished over the disclosure of Vaisanen as modified by Zyren because neither reference discloses a look ahead function to determine if the frequency bands that will be used for the Bluetooth transmissions are being used by the WLAN system. The claimed look-ahead function determines whether there is traffic on the transmission frequency of the master unit and the response frequency of the slave unit.

The Zyren patent discloses a system with an additional signal to alert the mobile unit that a WLAN system is operating in the area into which the mobile unit has roamed. The cited portion of Zyren which allegedly teaches the look ahead function (col. 2, line 55 – col. 3, line 39) actually refers to monitoring of an added “beacon” frequency. Claim 23 is not obvious since it allows system coordination without departure from the standards of either system, and in fact takes advantage in an unobvious way of the characteristics of the protocols. (*See Specification*, p.17, wherein the look ahead function is a scanning of subsequent time slots within the protocol). Thus, the apparatus of claim 23 does not require an additional beacon, but has a function that looks at the signal environment before transmitting on the Bluetooth protocol. The apparatus as claimed takes special advantage of the characteristics of the Bluetooth system wherein the Master unit controls the radio environment by transmitting to its slave units with a transmission that enables the slave units to transmit in response.

For at least these reasons, Applicants respectfully submit that claim 23 is patentable over the cited combination of references.

Claims 39-44 are rejected as obvious in view of the Vaisanen Patent. Applicants respectfully request reconsideration based on the following remarks.

The invention specified by claim 39 is a method of providing voice communications over a WLAN system and using a wireless headset. In particular, as set forth in the claims, voice data is communicated between the mobile unit and an access point using a first protocol, such as IEEE Standard 802.11. The mobile unit may be, for example a belt mounted portable data communications device. The mobile unit communicates the voice data with a portable device, which may be a wireless headset using a second data communications protocol, such as Bluetooth. Communication with the portable device is arranged to be non-interfering with the communications with the access point. Conversion between voice and data takes place in the portable device.

The Vaisanen Patent, while disclosing WLAN communications between a mobile unit and an access point and disclosing Bluetooth communications between the mobile unit and a mobile phone (Column 2, lines 17 to 20), neither discloses nor suggests the method of claim 39.

First, as noted above, Vaisanen describes a data communications system for antenna sharing wherein data is communicated over a WLAN when an access point is available, and over a cellular telephone when an access point is not available. There is no suggestion that the same data corresponding to voice be communicated to the mobile unit from the access point using one protocol and from the mobile unit to the portable device using another protocol. Indeed, Vaisanen teaches precisely the *opposite*, since the system of Vaisanen does not disclose or suggest using both radio transceivers simultaneously, but rather *only using one or the other* depending upon the availability of wireless networks. (See, e.g., Vaisanen, col. 6, lines 36-53, discussing that WLAN is the preferred operation, and that Bluetooth is only utilized when no

WLAN is detected). Indeed, the system of Vaisanen would not even be capable of performing the functions of the claimed invention, since there is no continuous/simultaneous operation of both radios.

Using the system of Vaisanen, a user could only use the mobile telephone directly for voice communications. Using the Vaisanen system which applies only one protocol at a time, there could be no communication between the mobile unit and the mobile telephone when an access point is available to the mobile unit (since, as noted above, WLAN is the “preferred method” of communication (Vaisanen, col. 6, lines 46-47)).

Vaisanen clearly does not contemplate or suggest the method of claim 39 and dependent claims 40 to 44, for at least the reason that there is no disclosure or suggestion to transmit the same data using two different protocols. Accordingly, Applicants respectfully submit that claims 39 and 44 are patentable. Reconsideration of the rejections of these claims is respectfully solicited.

CONCLUSION

In view of the foregoing amendment and remarks, favorable reconsideration and allowance of claims 1-20, 23, 25-28, 39-44, 55 and 56 are respectfully solicited. In the event that the application is not deemed in condition for allowance, the examiner is invited to contact the undersigned in an effort to advance the prosecution of this application.

Respectfully submitted,



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